Part 9 · Spot the Mistake

Each solution below reaches a wrong answer, and exactly one step is to blame. Find the first wrong step and rewrite it correctly. Marking other people's work is the fastest way to stop making their mistakes.

☐ Spot the Mistake

Proving similarity when only two pairs of sides are proportional

Step 1. △ABC and △DEF have AB/DE = BC/EF (both equal to 2/3).

Step 2. Two pairs of sides are proportional, so by SSS, △ABC ~ △DEF.

Step 3. Therefore ∠A = ∠D, ∠B = ∠E, ∠C = ∠F.

_____ The first wrong step is Step _____ . What should it say?

_____

☐ Spot the Mistake

Writing the similarity statement for two triangles

Step 1. In Fig. 6.22, ∠A = ∠D, ∠B = ∠E, ∠C = ∠F.

Step 2. So we may write △ABC ~ △EDF.

Step 3. This correctly shows the vertex correspondence.

_____ The first wrong step is Step _____ . What should it say?

_____

☐ Spot the Mistake

Applying the AA criterion in the shadow problem

Step 1. △ABE and △CDE share the angle at E (common angle).

Step 2. ∠B and ∠D are both angles inside the triangles, so no further check is needed for AA.

Step 3. ∠B = ∠D = 90° because both the lamp-post and the girl stand vertical to the ground.

_____ The first wrong step is Step _____ . What should it say?

_____

Every triangle you meet from here on can be checked against another with just a handful of matching parts — AA, SSS, or SAS — and the ratios follow for free. △~△ □